

DOCUMENT RESUME

ED 217 827

HE 015 267

AUTHOR Costello, Francis J.
TITLE The Influence of Time on the Relationship of
Precognition and Creativity.
PUB DATE 82
NOTE 14p.
EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Behavioral Science Research; *Creativity; Creativity
Tests; Educational Research; *Intervals; Personality
Traits; *Prediction; *Time
IDENTIFIERS Dean Miholasky Precognition Test; *Precognition;
*Torrance Tests of Creative Thinking

ABSTRACT

The possibility of a time sensitive relationship between scores on the Dean Miholasky precognition test and those on Activity 2 of the Torrance Test for Creative Thinking was investigated with 58 freshmen students in a school of engineering. The Torrance Test consists of three activities that present a series of figural stimuli to the subject who diagrammatically completes the picture. The Dean Miholasky test, used to develop scores on precognition, requires the subject to predict a 100 digit number that is subsequently produced by a computer's random generator. The predicted number is compared to the computer's number, and the total number of hits is the subject's precognition score. Immediately on completion of the Torrance test, each subject was tested for precognition. Approximately 10 days later, each subject was retested for precognition. Precognition test responses were compared to a computer's randomly generated number. The seed needed for the random generator was produced by selecting, at random, numbered ping-pong balls from a box. Based on the findings, it appears that creativity scores and precognition scores are related by an apparently weak but persistent mechanism when the two tests are administered at the same time. This weak but persistent relationship disappears when a sufficient period of time separates the testing of creativity and precognition. It is suggested that additional related experiments with a complex research design and large sample size are necessary to resolve research questions on this topic. (SW)

* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *

ED217827

THE INFLUENCE OF TIME ON THE RELATIONSHIP
OF PRECOGNITION AND CREATIVITY

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)

✓ This document has been reproduced as
received from the person or organization
originating it.
Minor changes have been made to improve
reproduction quality.

- Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

"PERMISSION TO REPRODUCE THIS
MATERIAL HAS BEEN GRANTED BY

*Francis J.
Costello*

TO THE EDUCATIONAL RESOURCES
INFORMATION CENTER (ERIC)."

Francis J. Costello, Ed.D
Nova University
1982

NE015-267

INTRODUCTION

Since 1977 the writer has conducted a number of experiments designed to investigate relationships between precognition and creativity. Two of the experiments were reported: ERIC Document #ED165628 and ERIC Document #ED185945. (1-2)

The results of these studies have led the writer to the conclusion that Activity 2 of the Torrance Test for Creative Thinking, and the Dean Miholasky precognition test produce test scores that are related.

To date, experiments involved the application of the Torrance Test to subjects who were, immediately thereafter, tested for precognition via the Dean Miholasky test.

Correlations of the creativity to precognition scores, relative to activities 1 and 3 of the creativity test, produce mixed or random correlation factors. However, correlations between activity 2 of the Torrance test and precognition scores produced relatively strong correlation factors that were always negative. The negative, relatively strong, correlations between activity 2 and precognition were persistent.

It occurred to the writer that the relationship between activity 2 scores and precognition scores might be time sensitive. Previous experiments tested each subject for precognitive ability immediately after the subject was tested for creativity. The question arose: how would the relationship between activity 2 scores and precognition scores behave if the subject was tested, as in previous experiments, for precognition immediately after the creativity test, and then, 10 days later, tested again for precognition?

Experiments, reported via this paper, were designed to investigate the possibility of a time sensitive relation between activity 2 and precognition.

DESIGN OF EXPERIMENT

SUBJECTS

The selection of subjects was confined to freshmen students in the School of Engineering at an urban University. Otherwise, the selection was made with convenience of schedule in mind. A strict random selection was not used; however, volunteers or selection based on some attribute was not involved. Subjects were both male and female, of approximately the same age, and from a mixed background that conforms to the social mix of the general New Haven metropolitan area. (3) Previous experiments with engineering seniors and both freshmen and senior liberal arts students did not produce the negative correlations that have been persistent with engineering freshmen subjects. Consequently, this study has been directed toward engineering freshmen.

TEST FORMS

Creativity scores were obtained via the Torrance Test for Creative Thinking, Figural B. The test consists of three activities that present a series of figural stimuli to the subject who diagrammatically complete the picture. The test is supported by a comprehensive technical manual and scoring guide. (4) Validity and reliability of the Torrance test is supported by a number of independent studies. (5)(6)(7)(8)(9)

The Dean Miholasky test, used to develop scores on precognition, requires the subject to predict a 100 digit number that is subsequently produced by a computer's random generator. The predicted number is compared to the computer's number. When a predicted digit corresponds to a digit in the computer's number, a "hit" is recorded. The total number of hits is the subject's precognition score.

By chance alone, the average number of hits in 100 tries should be 10. Extensive investigation by Miholasky shows that the engineering subject averages less than ten (10). The writer's experience substantiates Miholasky's results.

Validity and reliability of the precognition test is unestablished and will remain so since the attribute it is suppose to measure, precognition is, also, scientifically unestablished.

However, from a construct standpoint, the test does seem to be a credible means to test forecasting ability where the advantage of practice, experience and education is eliminated.

MANAGEMENT AND DESIGN OF THE EXPERIMENT

Administration of the Torrance test and the Dean Miholasky test, the scoring of both, and the selection of subjects were accomplished by a graduate assistant who was not made aware of the hypothesis involved in the experiment. The assistant studied the Torrance technical manual and scoring guide, and entirely controlled the scoring of the creativity tests.

Precognition test responses were compared to a computer's randomly generated number. The seed needed for the random generator was produced by selecting, at random, numbered ping-pong balls from a box. The first odd four-digit number that appeared was used as the seed.

Previous experiments conducted by the author utilized all of the data that was taken. This experiment excluded what was regarded as "nonsense responses" to the precognition test. Some subjects used a single digit 100 times. Others simply repeated the sequence 0 to 9. There were a significant number of responses rejected via the "nonsense response" rule. Whether or not this action was appropriate is unknown.

The subjects were administered the Torrance test in strict compliance to the instructions in the Torrance technical manual. The test procedure takes about 40 minutes to complete. Immediately upon completion of the Torrance test, each subject was tested for precognition. Approximately 10 days later, each subject was retested for precognition. Two days after the second precognition test was completed, the randomly generated number was produced via a computer. Both the first and second precognition tests were scored by comparing the responses to the same random number produced by the random generator.

HYPOTHESIS

The statistical hypothesis used to test the data supplied by the experiment is:

- Ho. 1: There is no relation between precognition scores and creativity scores.

Two additional hypotheses of an observational quality are involved in the experiment.

Ho. 2: Correlation factors that relate the scores of activity 2 of the creativity test to the scores of the first precognition test will consist entirely of negative values.

Ho. 3: Correlation factors relating the scores of activity 2 to the second precognition test will be positive values.

A Pearson linear correlation will be used to test hypothesis 1.

RESULTS

CORRELATIONS

The Torrance creativity test produces 18 individual scores. A list of the complete scores for each subject is in Appendix A. Precognition scores for the first and second precognition tests are given in appendix B.

Table 1 presents the results of the statistical correlation of creativity scores to the precognition scores of test 1 and test 2. Results are in terms of the correlation factor, r , the Z score, and the statistical confidence level appropriate to a non-directional hypothesis.

Appendix C gives the equation used to produce the Pearson product moment correlation factor. (11)

TABLE 1 - STATISTICAL RESULTS

Creativity Category	Precognition 1			Precognition 2		
	r	z	CON. %	r	z	CON. %
Activity 1:						
Originality	-.028	-.209	16	.183	1.380	83
Elaboration	.185	1.396	83	.151	1.143	74
Activity 2:						
Fluency	-.120	-.908	63	.188	1.380	83
Flexibility	-.105	-.795	57	.130	.980	67
Originality	-.080	-.605	45	-.014	-.105	8
Elaboration	-.178	-1.342	82	.070	.532	40
Activity 3:						
Fluency	-.050	-.376	29	.090	.678	50
Flexibility	.171	1.293	80	.165	1.243	78
Originality	.053	.397	31	.117	.884	62
Elaboration	.052	.395	30	.092	.695	51
Total Scores:						
Fluency	-.086	-.650	48	.140	1.058	71
Flexibility	.062	.471	36	.211	1.589	88
Originality	.007	.055	.04	.131	.991	68
Elaboration	-.054	-.406	31	.123	.931	64
Activity 1	.168	1.268	79	.194	1.468	85
Activity 2	-.179	-1.350	82	.089	.669	49
Activity 3	.058	.439	34	.172	1.300	80
Total Scores	-.044	-.329	25	.178	1.341	82

Table 2 presents statistical information pertaining to the two precognition tests administered to the subjects.

Table 2 - Precognition Statistical Information

	Precognition Test 1	Precognition Test 2
Sample size	58	58
Mean score	8.72	8.98
Standard Deviation	3.15	2.72

A test for significance between the two precognition means, to 95% confidence, using the equation given in appendix C, produced a Z score of $-.476$. The null hypothesis, there is no difference between the means of the two samples, is accepted.

DISCUSSION

From a statistical standpoint, this study does not confirm a relationship between precognition and creativity. Correlation factors and their relative Z scores are too low to justify the establishment of a relationship.

However, the observational hypothesis, that correlations between creativity scores of activity 2 and the first precognition scores would be exclusively negative, has been sustained. Also, the confidence levels associated with the correlations of activity 2 categories and the first precognition scores are consistently clustered about the 55 or 60% level, while the confidence levels of the correlations of all other activity categories fluctuate in a random manner.

It must be pointed out that the same, relatively strong, consistently negative correlation (between activity 2 and precognition tests administered immediately after the creativity test) have been consistently reproduced in a number of experiments conducted by the writer, both reported and unpublished. (1,2)

Moreover, when the creativity scores for activity 2 were correlated to the second precognition test that was taken 10 days after the creativity test, the pattern of relatively strong, consistently negative correlation factors disappeared, and were replaced by a random mix.

Table 3 isolates the statistical correlation results that relate activity 2 of the creativity test to the two precognition tests.

Table 3 - Activity 2, Statistical Results

Activity 2 - Category	Precognition	
	Test 1 - Z Score	Test 2 - Z Score
Fluency	-.908	1.380
Flexibility	-.795	.980
Originality	-.605	-.105
Elaboration	-1.342	.532
Total Score	-1.350	.669

The consistent pattern of negative correlation Z scores that relate the creativity scores of activity 2 and precognition scores, when the creativity and precognition test are administered together, is the result of over a dozen separate experiments by the writer. Test sample sizes have varied, but none of the samples were less than 25. Testing has been administered by the writer, colleagues, and now a graduate student. The pattern of negative correlations persists.

This is the first experiment that employed a test-retest approach to an investigation of relationships between precognition and creativity. A search of the literature produced nothing. However, it is interesting that a consistent pattern of correlations established via a number of separate experiments, were soundly reversed by merely inserting a 10-day separation between the administration of the creativity test and the precognition test. Additional tests are needed to establish the reversal as a consistent phenomenon.

CONCLUSIONS

It appears that creativity scores produced by activity 2 of the Torrance test of Creative Thinking, and scores obtained via the Dean Miholasky precognition test are related by an apparently weak but persistent mechanism when the two tests are administered at the same time. This weak but persistent relation disappears when a sufficient period of time separates the testing of creativity and precognition. Additional related experiments of complex design and large sample sizes would be necessary to resolve the numerous questions that arise from the experiment and previous experiments in the same subject area conducted by the writer.

REFERENCES

1. Costello, F.J. The Effect of Contemporary Engineering Education on the Creative Potential of Engineering Students
Dept. of H.E.W., National Institute of Education
ERIC, Document #ED165628, April 1979
2. Costello, F.J. A Study in the Further Development of a Relationship Between Precognition and Creativity
Dept. of H.E.W., National Institute of Education
ERIC, Document #ED185945, Sept. 1980
3. Costello, F.J. Evaluation of the Societal Policy and Objectives of an Urban University
Dept. of H.E.W., National Institute of Education
ERIC, Document #ED131784, April 1977
4. Torrance, E.P. Norms-Technical Manual, Torrance Test for Creative Thinking
Personnel Press, 1973
5. Woodthe, K.H. A Study of the Reliability of Creativity Tests
Doctoral Dissertation, University of Utah, 1963
6. Goralski, P.S. Creativity: Approaches to Classroom Teaching
Doctoral Dissertation, University of Minnesota, 1964
7. Hagender, H. Influence of Creative Writing on Creative Development
Master's Thesis, University of Minnesota, 1967
8. Fleming and Weinbraub Rigidity as a Measure of Creativity
Journal of Educational Psychology, 53, 1962
9. Yamamoto, K. Creative Writing and School Achievement
School and Society, 91, 1963
10. Dean, D. and Miholasky, J. Executive E.S.P.
Prentice Hall, 1974

APPENDIX A

CREATIVITY DATA

Creativity data for each subject is recorded via 18 scores. Each score, labeled A through R, represents the subject's creativity score relative to the following index of test activities and categories:

<u>Column</u>	<u>Identification</u>	<u>Category</u>
A	Activity 1	Originality
B	Activity 1	Elaboration
C	Activity 2	Fluency
D	Activity 2	Flexibility
E	Activity 2	Originality
F	Activity 2	Elaboration
G	Activity 3	Fluency
H	Activity 3	Flexibility
I	Activity 3	Originality
J	Activity 3	Elaboration
K	Total Score	Fluency
L	Total Score	Flexibility
M	Total Score	Originality
N	Total Score	Elaboration
O	Total Score	Activity 1
P	Total Score	Activity 2
Q	Total Score	Activity 3
R	Total Score	Activity 1+2+3

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
5	8	10	8	11	26	6	2	2	13	16	10	18	47	13	55	23	91
5	8	10	10	10	22	2	2	10	8	12	12	31	38	13	52	28	93
0	18	10	8	11	37	4	4	1	10	14	12	12	65	18	66	19	103
0	15	10	10	14	4	12	10	8	15	22	20	22	54	15	58	45	118
5	18	9	9	11	27	8	4	3	6	17	13	19	51	23	56	21	100
3	12	10	10	14	17	12	4	21	13	22	14	38	42	15	51	50	116
0	2	10	10	7	15	2	1	1	6	12	11	8	23	2	42	10	54
0	3	10	10	7	24	2	2	3	7	12	12	10	34	3	51	14	68
0	9	7	7	8	15	4	2	1	2	11	9	9	26	9	37	9	55
0	12	6	6	7	12	3	2	15	5	9	8	22	29	12	31	25	68
0	9	10	10	8	20	0	0	0	0	10	10	8	29	9	48	0	57
3	2	6	6	4	10	1	1	13	4	7	7	20	16	5	26	19	50
3	7	5	5	8	16	3	3	13	3	8	8	24	26	10	34	22	66
0	14	5	5	4	18	2	1	3	20	8	6	7	52	14	32	26	72
0	10	10	10	15	37	1	1	0	2	11	11	15	49	10	72	4	86
0	17	10	10	3	33	5	2	1	4	15	12	4	54	17	56	12	85
3	4	10	6	8	11	8	5	11	12	18	11	22	27	7	35	36	78
0	21	9	7	9	27	7	4	8	14	16	11	17	62	21	52	33	106
4	19	10	8	7	37	7	3	26	6	17	11	37	62	23	62	42	127
0	2	10	10	9	18	3	2	0	5	13	12	9	25	2	47	10	59
3	20	7	7	9	47	0	1	8	3	7	8	20	70	23	70	12	105
0	16	10	7	6	19	6	3	5	8	16	10	11	43	16	42	22	80
4	24	5	3	5	32	3	2	23	9	8	5	32	65	28	45	37	110
0	14	10	6	10	21	7	4	7	15	17	10	17	50	14	47	33	94
4	12	10	7	8	27	9	6	3	12	19	13	15	51	16	52	30	98
0	16	10	10	8	37	3	2	20	3	13	12	28	56	16	65	28	109
4	29	10	7	14	39	0	1	22	1	10	8	40	69	33	70	24	127
5	15	9	9	16	35	0	0	22	1	9	9	43	51	20	69	23	112
4	8	4	3	4	20	2	1	3	5	6	4	11	33	12	31	11	54
0	30	9	9	14	86	6	2	15	12	15	11	29	128	30	118	35	183
3	8	7	5	8	19	8	4	2	12	15	9	13	39	11	39	26	76
4	10	10	7	7	33	3	2	15	11	13	9	26	54	14	57	31	102
2	16	5	4	4	22	2	1	7	9	7	5	13	47	18	35	19	72
3	7	3	3	0	8	0	0	3	2	3	3	6	17	10	14	5	29
0	15	10	10	10	26	4	3	4	9	14	13	14	50	15	56	20	91
3	13	10	7	9	14	0	0	5	4	10	7	17	31	16	40	9	65
4	13	5	5	3	18	3	2	4	6	8	7	11	37	17	31	15	63
4	25	7	7	8	27	6	5	1	13	13	12	13	65	29	49	25	103
0	21	10	9	8	29	0	2	0	3	10	11	8	53	21	56	5	82
0	6	5	5	7	13	2	2	18	14	7	7	25	33	6	30	36	72
5	10	5	4	6	22	0	0	0	0	5	4	11	32	15	37	0	52
4	20	6	6	5	32	9	4	1	10	15	10	10	62	24	49	24	97
1	13	9	8	10	32	0	3	13	7	9	11	24	50	14	57	23	94
5	3	7	7	8	29	10	12	11	15	17	19	24	47	8	51	48	107
0	3	5	4	5	6	2	3	0	6	7	7	5	15	3	20	11	34
2	6	10	7	13	38	6	1	0	3	16	8	15	47	8	68	10	86
5	18	8	6	7	57	7	6	8	15	15	12	20	90	23	78	36	137
5	12	8	3	4	13	21	7	7	20	29	10	16	45	17	28	55	100
2	12	10	6	8	9	0	0	0	0	10	6	10	21	14	33	0	47
2	8	3	3	3	11	9	6	4	13	12	9	9	32	10	20	32	62
3	21	8	8	3	23	12	11	8	14	20	19	14	58	24	42	45	111
3	6	10	7	17	31	11	0	0	0	21	7	20	37	9	65	11	85
5	2	10	7	7	14	4	2	5	6	14	9	17	22	7	38	17	62

APPENDIX B
PRE-COGNITION SCORES

<u>Subject</u>	<u>Test 1</u>	<u>Test 2</u>	<u>Subject</u>	<u>Test 1</u>	<u>Test 2</u>
1	3	9	30	8	11
2	8	12	31	15	9
3	9	8	32	9	12
4	9	8	33	9	8
5	9	11	34	7	12
6	5	9	35	6	11
7	10	10	36	11	7
8	5	9	37	5	10
9	14	8	38	13	12
10	9	9	39	12	14
11	7	9	40	11	6
12	12	9	41	6	10
13	14	7	42	10	7
14	7	6	43	12	7
15	10	9	44	11	11
16	9	8	45	7	8
17	12	12	46	7	7
18	10	10	47	9	6
19	8	9	48	10	7
20	6	0	49	7	13
21	9	2	50	9	7
22	7	12	51	16	13
23	14	12	52	8	10
24	8	7	53	7	10
25	8	13	54	7	9
26	10	8	55	6	9
27	15	6	56	5	7
28	8	6	57	3	14
29	4	5	58	1	11

APPENDIX C
STATISTICAL EQUATIONS

Pearson product - moment correlation:

$$r = \frac{N \sum XY - (\sum X)(\sum Y)}{\left\{ [N \sum X^2 - (\sum X)^2] [N \sum Y^2 - (\sum Y)^2] \right\}^{1/2}}$$

Test for significance between two means, large samples:

$$Z = \frac{\bar{X}_1 - \bar{X}_2}{\left[\frac{S_1^2}{N_1} + \frac{S_2^2}{N_2} \right]^{1/2}}$$